



(11)

EP 1 464 495 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
03.01.2007 Bulletin 2007/01

(51) Int Cl.:
B41J 2/14 (2006.01) **B41J 2/05 (2006.01)**
B41J 2/21 (2006.01)

(43) Date of publication A2:
06.10.2004 Bulletin 2004/41

(21) Application number: 03022937.1

(22) Date of filing: 09.10.2003

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT RO SE SI SK TR
Designated Extension States:
AL LT LV MK

(30) Priority: 11.03.2003 US 387149

(71) Applicant: **Hewlett-Packard Development Company, L.P.**
Houston, TX 77070 (US)

(72) Inventors:

- **Mackenzie, Mark H.**
Corvallis, OR 97333 (US)
- **Torgerson, Joseph M.**
Philomath, Oregon 97370 (US)
- **Miller, Michael D.**
Philomath, OR 97330 (US)

(74) Representative: **Schoppe, Fritz**
Schoppe, Zimmermann, Stöckeler & Zinkler
Patentanwälte
Postfach 246
82043 Pullach bei München (DE)

(54) Fluid ejection device

(57) In one embodiment, the present invention relates a fluid ejection device comprising a first drop ejector (303 and 406) associated with a firing chamber (301). The first drop ejector is configured to cause fluid having a first drop weight to be ejected from the firing chamber, wherein the first drop ejector includes a first heating element (303) and first drive circuitry (406) electrically coupled with the first heating element. The present embodiment further comprises a first bore (317) disposed within an orifice layer (305) disposed proximate the first drop ejector and associated with the first drop ejector. The present embodiment also comprises a second drop ejector (304 and 408) associated with the firing chamber. The second drop ejector is configured to cause fluid having a second drop weight to be ejected from the firing chamber, wherein the second drop ejector includes a second heating element and second drive circuitry electrically coupled with the second heating element. The present embodiment further comprises a second bore (319) disposed within the orifice layer disposed proximate the second drop ejector, and the second bore is associated with the second drop ejector.

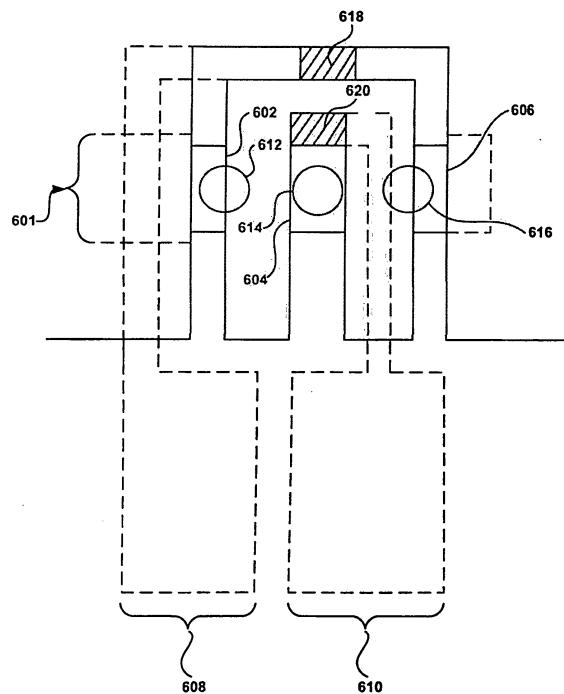


FIG. 6



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	US 6 137 502 A (ANDERSON FRANK EDWARD [US]) ET AL) 24 October 2000 (2000-10-24) * column 3, line 12 - column 6, line 60; figures 1-5 * ----- X EP 0 719 647 A (CANON KK [JP] CANON KK) 3 July 1996 (1996-07-03) * column 14, line 31 - column 18, line 17; figures 4,6A,6B,8 * ----- X US 2003/001924 A1 (CHOU CHUNG-CHENG [TW]) ET AL) 2 January 2003 (2003-01-02) * paragraph [0031] - paragraph [0033]; figures 3-6 * ----- X US 2002/167566 A1 (SCHULTE DONALD W [US]) 14 November 2002 (2002-11-14) * paragraph [0025] - paragraph [0031]; figures 4-6 * ----- X US 6 318 847 B1 (WADE JOHN M [US]) 20 November 2001 (2001-11-20) * column 3, line 60 - column 6, line 27 * -----	1-11	INV. B41J2/14 B41J2/05 B41J2/21
			TECHNICAL FIELDS SEARCHED (IPC)
			B41J
1	The present search report has been drawn up for all claims		
	Place of search	Date of completion of the search	Examiner
	Munich	20 November 2006	Axters, Michael
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 03 02 2937

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
 The members are as contained in the European Patent Office EDP file on
 The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-11-2006

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 6137502	A	24-10-2000	AU CN EP HK JP MX WO	7070000 A 1376114 A 1214199 A1 1048969 A1 2003508257 T PA02001967 A 0115904 A1	26-03-2001 23-10-2002 19-06-2002 02-09-2005 04-03-2003 31-10-2002 08-03-2001
EP 0719647	A	03-07-1996	CN CN CN CN DE US US	1262173 A 1530228 A 1131612 A 1533891 A 69534683 T2 6309051 B1 6325492 B1	09-08-2000 22-09-2004 25-09-1996 06-10-2004 06-07-2006 30-10-2001 04-12-2001
US 2003001924	A1	02-01-2003	DE TW	10228849 A1 491734 B	23-01-2003 21-06-2002
US 2002167566	A1	14-11-2002		NONE	
US 6318847	B1	20-11-2001		NONE	